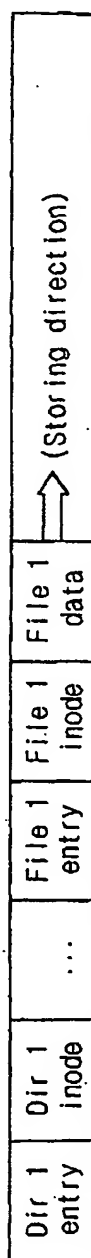


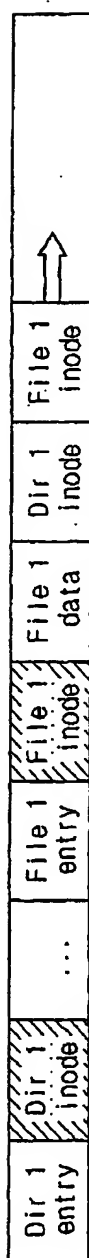
10/539751

Fig.1

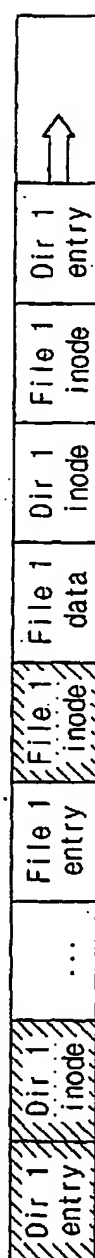
<Flash memory>



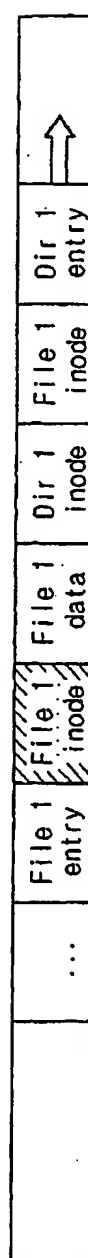
(a) Initial journaling storage state



(b) State of when Dir 1 inode and File 1 inode are changed



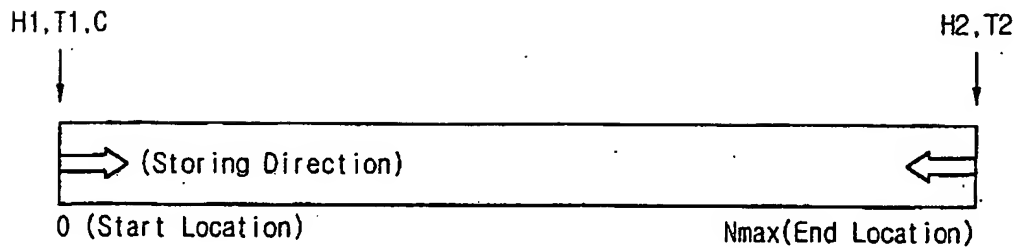
(c) State of when Dir 1 entry moves for Garbage Collection



(d) State of when one erase block is erased after GC

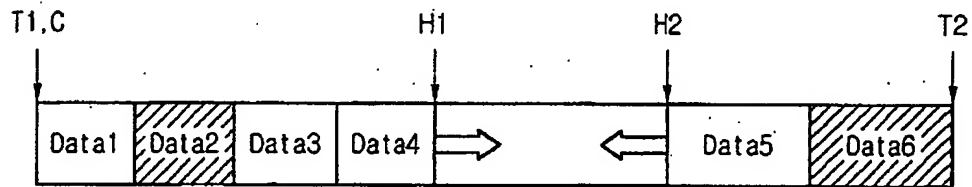
10/539751

Fig.2

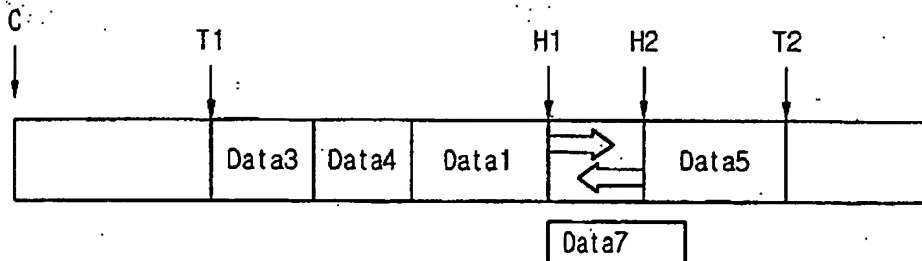


Data1 Data size to be stored(S)

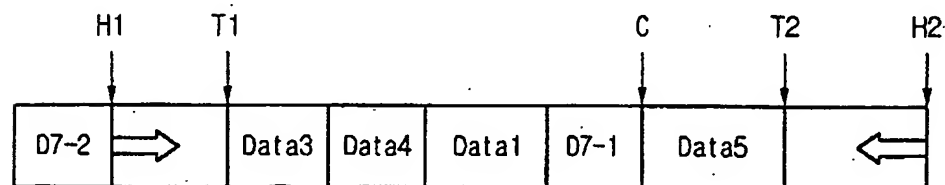
(a) State of when Data whose size is S is stored



(b) State of when six data are stored and Data2 and Data6 are erased



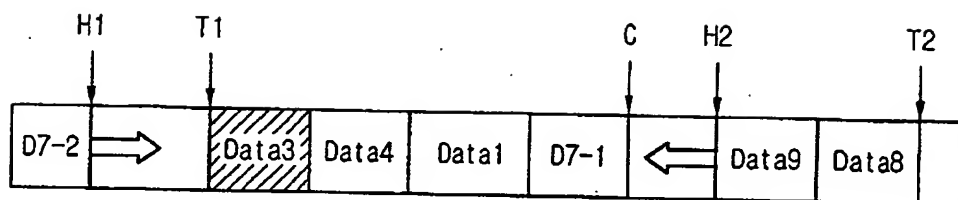
(c) State of when Data1 moves for GC, invalid space is erased and Data7 is stored



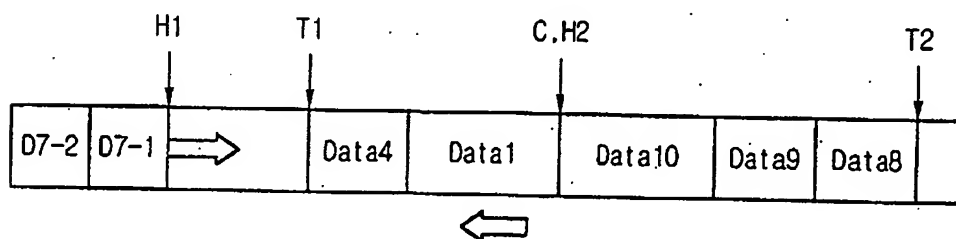
(d) State of when Data7 is stored and central location is determined

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Fig.3



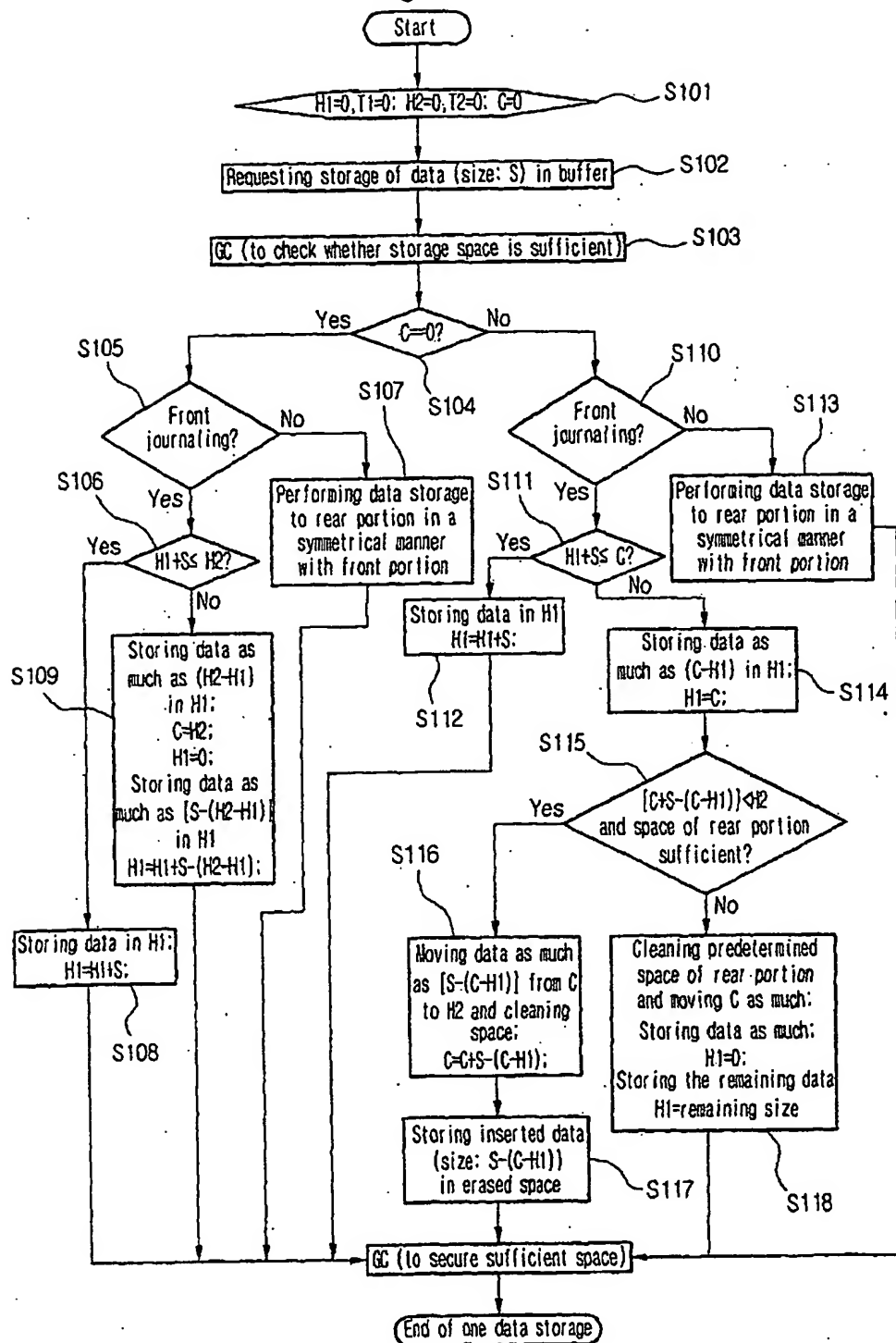
(a) State of when there is no storage space for Data10



(b) State of when head of rear journaling moves central location

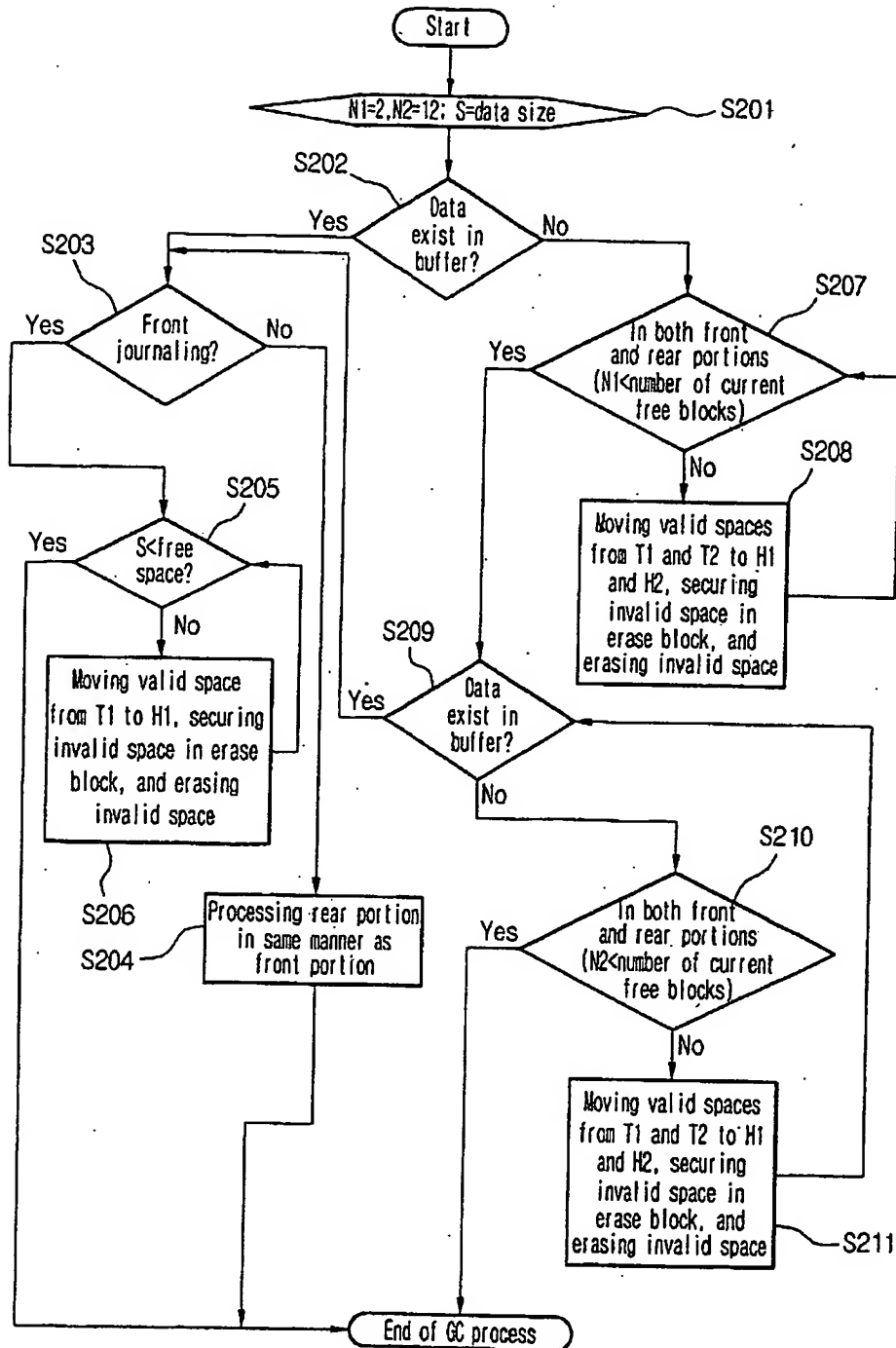
10/539751

Fig.4



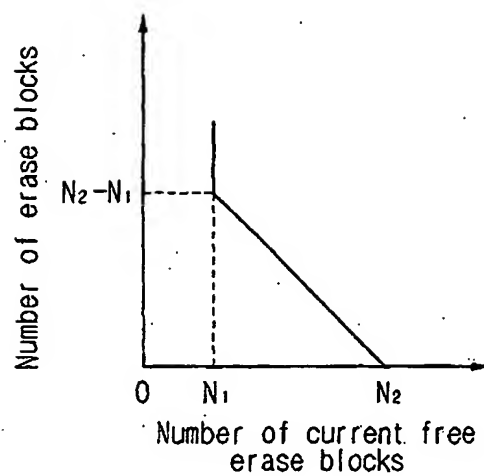
10/539751

Fig.5



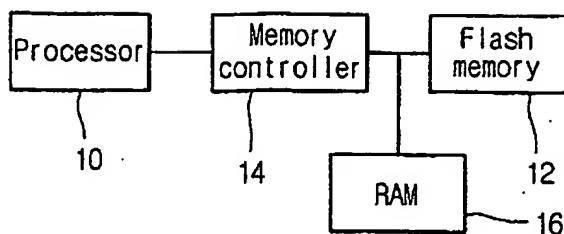
10/539751

Fig.6



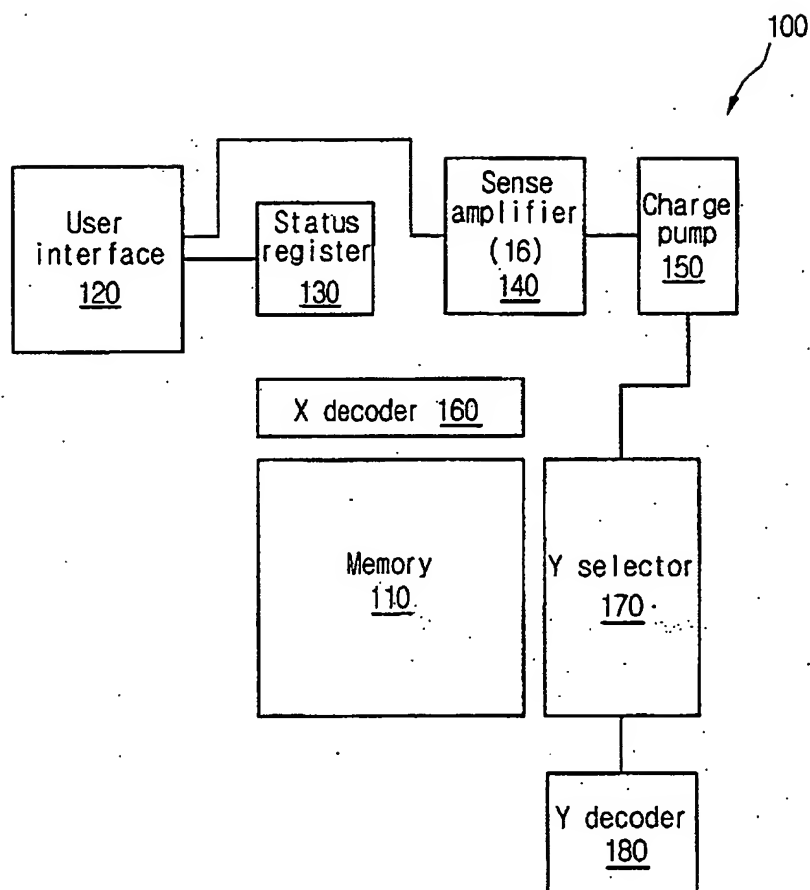
10/539751

Fig.7



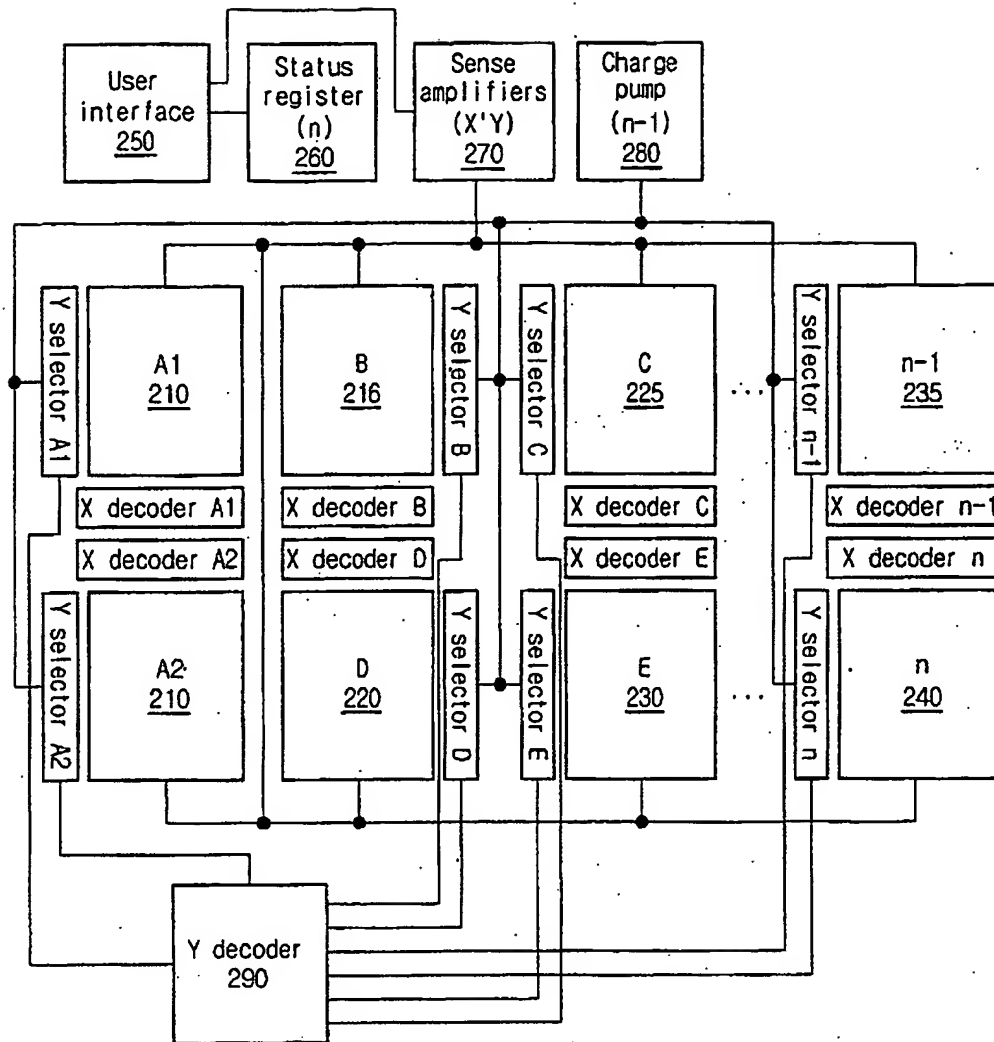
10/539751

Fig.8



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Fig.9



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Fig. 10.

